SN: 10/088,058
Art Unit: 1714

Remarks

Claims 1-12 are currently pending in the above-captioned matter. By this amendment, claims 1, 5-8, 10 and 11-12 have been amended. Independent claim 10 has been amended to correct clerical errors, not in response to any substantive rejection. No new matter has been added. After entry of this amendment, claims 1-12 are pending, claims 1 and 10 being independent. Remarks made herein are based on the claims as amended hereby.

Applicants respectfully acknowledge the Examiners indication that Shimakura et al. (US 6,475,300) is not prior art against the instant application, but that the claims thereof are deemed by the Examiner to overlap the subject matter of Applicants' claims.

35 USC §112 Rejections

Claims 5-8 and 11-12 were rejected under 35 USC §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject mater which applicant regards as the invention.

As instructed by the Examiner, claims 5-8 and 11 have been amended by replacing the word "and" with the word --or--. Applicants respectfully request withdrawal of the rejection under 35 USC §112, second paragraph.

35 USC §103 Rejections

Claims 1-12 were rejected under 35 USC 103(a) as being unpatentable over Adaniya et al, (US 4,775,600). This rejection is traversed. The Examiner is correct in stating that Adaniya et al. suggests the use of silane as a cross-linking agent for epoxy resin. However, the silane amounts taught are outside Applicant's claimed range. As amended claim 1 recites "15 to 60 percent by weight of non-volatile constituents of a component of silane coupling agent". While the '600 patent teaches 0.1 to 15 parts per 100 parts of the sum of the solids of the basic epoxy resin and silica component. The total parts of the '600 patent (basic epoxy resin + silica + silane) thus, at a minimum, amounts to 115 parts. The 15 parts silane/115 total parts is less than the 15%. The '600 specifically teaches against using more than 15 parts of the silane compound. Similarly, claim 10 recites from "22 to 38 percent by weight of non-volatile constituents of a component of silane coupling agent", which is also not taught or suggested by

the '610 patent.

Furthermore, the '600 patent does not teach or suggest the use of silane cross-linker alone, but instead requires the silane to be combined with a polyisocyanate:

> The resin composition film may further comprise a silane compound, that is, a monomer or oligomer of a di- or tri-alkoxysilane compound, in addition to the above-mentioned polyisocyanate compound and silica, optionally together with the above-mentioned hardly soluble chromium compound.

In each of the resin and additive combinations, silane is paired with the polyisocyanate:

> The film of the resin composition of the present invention may comprise various additives in addition to the above-mentioned base resin. For example, the following combinations can be mentioned.
>
> (1) Base resin+polyisocyanate compound
>
> (2) Base resin+polyisocyanate compound+silica
>
> (3) Base resin+silica
>
> (4) Base resin+polyisocyanate compound+silica+hardly soluble chromium compound
>
> (5) Base resin+silica+hardly soluble chromium compound
>
> (6) Base resin+**polyisocyanate compound**+silica+**silane** compound
>
> (7) Base resin+**polyisocyanate compound**+silica+**silane** compound+hardly soluble chromium compound

Based on the foregoing teachings of the '600 patent, it would not have been obvious to one of ordinary skill in the art at the time the invention was made to modify the '600 patent to Applicants' claimed combination. There is no motive to increase the amount of silane. The '600 patent admits that more silane does not increase the effect desired in the '600 patent invention. Col. 10, lines 58-68.

Claims 1-12 were also rejected under 35 USC 103(a) as being unpatentable over Sujita et al. (US 5,723,210) in view of Adaniya et al (US 4,775,600). The '210 patent is directed to a steel sheet having a chromate-silica film on the metal surface and a resin coating film adhered to the chromate-silica film. The resin coating film is formed from an aqueous paint. See Abstract of '210 patent.

It appears that the Examiner believes that the resin coating film is similar to Applicants' invention. This is not the case. Applicants' invention requires the presence of a silane coupling agent. In contrast, the '210 patent teaches against the use of silane coupling agents, stating:

> In an attempt to solve this problem, Japanese Laid-Open Patent No. 63-274475 discloses a process in which a colloidal silica in aqueous resin solution, a silane coupling agent, and phosphonic acid or magnesium or calcium phosphinate [sic] are added and baked so as to maintain their decomposition components in the organic coating film. Although chromium dissolution resistance is improved by this process, the obtained paint is less stable due to easy gel formation because the phosphonic acid additive forms networks with the colloidal silica, with the silane coupling agent facilitating this network formation. *See Col. 2, line 12-22 (emphasis added).*

The '210 later specifically teaches that silane coupling agents are not to be used in the resin;

> In the present invention, since the organic resin paint contains no silane coupling agent, defects such as gelation of the paint can be completely prevented. *See Col. 6, line 34-36.*

The above-quoted language shows that the '210 patent teaches against use of silane in the organic resin for use in an aqueous composition. There would be no motive to modify the '210 patent by adding silane according to the '600, where the primary reference teaches against silane usage. Further, even if combined with the '210 patent, the '600 patent does not remedy the deficiencies of the primary reference where, as discussed above, the '600 patent teaches silane amounts outside Applicant's claimed range. Based on the foregoing, it would not have been obvious to one of ordinary skill in the art at the time the invention was made to modify the '210 patent as proposed by the Office.

Claims 1-12 were also rejected under 35 USC 103(a) as being unpatentable over Tsuneta et al (US 5,213,846) in view of Adaniya et al (US 4,775,600). The '846 patent a non-aqueous coating which utilizes solvent. In each of the Examples where aqueous reactants were introduced, the water is subsequently "thoroughly removed." The '846 teaches possible cross-linking agents which conspicuously do not include silanes: "cross linking agents such as a melamine resin, a benzoguanamine resin and a polyblocked isocyanate compound", see Col. 5, line 44-51. There is no teaching or suggestion to modify the '846 according to the '600 patent, and no motivation to select water soluble resins from the '600 patent, where the majority of the '600 patent examples are non-aqueous. Further, there absolutely no teaching in either patent to

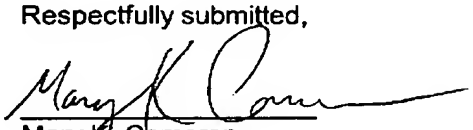
form an aqueous composition with a silane coupling agent. Further, even if combined with the '846 patent, the '600 patent does not remedy the deficiencies of the primary reference where, as discussed above, the '600 patent teaches silane amounts outside Applicant's claimed range. Accordingly, it would not have been obvious to one of ordinary skill in the art at the time the invention was made to modify the '846 patent as proposed by the Office.

Based upon the foregoing, the rejections under 35 USC 103(a) should be withdrawn.

Conclusion

Applicants request reconsideration in view of the amendments and remarks contained herein. Applicants submit that the claims are in condition for allowance and a notice to that effect is respectfully requested. Should the Examiner have any questions regarding this paper, please contact the undersigned

Respectfully submitted,



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